Managing the Expansion of Graduate Education in Texas

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This study supports THECB strategic planning

- THECB has adopted the new 60x30TX strategic plan for 2015–2030
  - Targets 80% increase in awards
- THECB will develop a specific strategic plan for graduate education
  - With GEAC input

By 2030, at least 60 percent of Texans ages 25-34 will have a certificate or degree.
The study has three objectives

• Assess the need to expand graduate programs in Texas higher education institutions

• Provide guidance to THECB and higher education institutions on how to prepare and evaluate graduate program proposals

• Analyze policies that can manage any needed expansion of graduate programs in Texas
We use mixed methods

• Quantitative data
  – Degree completions
  – Other performance indicators
  – Labor market measures and projections

• Case studies in 12 Texas institutions and six example fields, using interviews and focus groups of
  – Institutional-level stakeholders
  – Department-level stakeholders
  – Employers

• Document review and state-level interviews
  – Graduate program expansion policies in CA, NY, and FL
## Project Schedule

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft report circulated for public comment and peer review</td>
<td>September-October 2016</td>
</tr>
<tr>
<td>Final report drafted</td>
<td>December 2016</td>
</tr>
<tr>
<td>Final report edited and published</td>
<td>February 2017</td>
</tr>
</tbody>
</table>
Main Study Conclusions
Texas is likely to need to expand graduate education and research programs

- 60x30TX plan calls for growth in higher education, including graduate education
- Texas has a number of nationally and internationally competitive universities and health-related institutions
- Efforts to increase competitiveness should focus on institutions with moderate to high research activity
- Graduate workforce demand is expected to be strong especially in fields where it is already strong
  - New or expanded programs will likely be needed
Expansion of graduate education could fuel prestige-seeking

- State could benefit from increasing number of nationally and internationally competitive research universities

- But prestige-seeking warrants some caution in reviewing proposals
Principal recommendations: How can Texas manage expansion of graduate education?
Consider increasing funding for research and education

- To enhance competitiveness of Texas public higher education institutions, the state should continue, and consider increasing, state research program funding
- The state should consider increasing general fund appropriations to keep pace with student growth under the 60x30 plan
  - THECB should continue the formula funding method which institutions agree fairly distributes funding among recipient universities
Emphasize institutional capacity and student access

• THECB should place emphasis on institutional policies and support for research when evaluating doctoral program proposals

• Institutions and systems should review student access regularly
  – Consider alternative pathways when access is affected
Ensure quality of online master’s degrees

- Institutions should regularly review quality of master’s programs through accreditation or an alternative process

- THECB could develop criteria to guide the evaluation of online master’s program quality
Support institutions in assessing labor market and student demand

• To support analyzing labor market demand, THECB could:
  – Provide institutions access to labor market analysis tools
  – Issue guidance on acceptable data sources
  – Require institutions to track graduate job placement (and provide supporting resources)

• To support analysis of student demand, THECB could:
  – Identify best practices for measuring student demand
  – Provide guidance on balancing student and labor market demands

• THECB should require institutions to demonstrate need for multidisciplinary programs
Strengthen the pipeline of domestic students, including underrepresented minorities, into science and engineering graduate programs

• Institutions and systems should consider programs to strengthen the pipeline of domestic students into science and engineering graduate programs
  – These efforts should also target underrepresented minorities

• THECB should emphasize program plans to provide student stipends when reviewing new research graduate programs proposals

• The state (or other funders) should consider funding special stipends for domestic students in science and engineering doctoral programs
Add some optional steps in the proposal development and review process

• Institutions should consider conducting their own pre-proposal reviews

• Institutions should consider consulting informally with THECB staff early during proposal development

• THECB could provide guidance on characteristics of successful proposals
Backup slides
We conducted seven tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Review THECB inventory of graduate programs</td>
</tr>
<tr>
<td>2</td>
<td>Review other states’ policies and practices on graduate program expansion</td>
</tr>
<tr>
<td>3</td>
<td>Assess Texas’s position in graduate education and research</td>
</tr>
<tr>
<td>4</td>
<td>Compare program offerings to state economic needs, strategic goals, and labor market</td>
</tr>
<tr>
<td>5</td>
<td>Conduct case studies in example fields</td>
</tr>
<tr>
<td>6</td>
<td>Interview Texas university system leaders</td>
</tr>
<tr>
<td>7</td>
<td>Recommend ways to improve proposal preparation and review</td>
</tr>
</tbody>
</table>
For the case studies, we selected 12 institutions to represent all public higher education peer groups.

<table>
<thead>
<tr>
<th>Peer Group</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>2</td>
</tr>
<tr>
<td>Emerging Research</td>
<td>5</td>
</tr>
<tr>
<td>Doctoral</td>
<td>1</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>1</td>
</tr>
<tr>
<td>Masters</td>
<td>1</td>
</tr>
<tr>
<td>Health-related</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>
We selected six case study fields

• We selected a variety of fields
  – Education, nursing, physical therapy, statistics, geographic information science and electrical engineering

• The fields vary across several dimensions
  – Size and level of student demand
  – Institutional interest in new programs
  – Emerging and established fields
  – Direct and indirect connection to occupations
We have completed most interviews and are scheduling the rest

<table>
<thead>
<tr>
<th>Organization Type</th>
<th>Institutions</th>
<th>Participants</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX higher education institutions</td>
<td>12</td>
<td>145</td>
<td></td>
</tr>
<tr>
<td>TX university systems</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Other state university systems</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Employers</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26</strong></td>
<td><strong>166</strong></td>
<td></td>
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</tbody>
</table>
Texas’s position in graduate education and research
Logic model describes relationships between graduate education and research and Texas state interests.
Texas has increased graduate degrees by 41%, but still produces fewer than CA and NY.

Graduate/professional degrees

<table>
<thead>
<tr>
<th>Year</th>
<th>TX</th>
<th>CA</th>
<th>FL</th>
<th>NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>40,000</td>
<td>80,000</td>
<td>20,000</td>
<td>100,000</td>
</tr>
<tr>
<td>2014</td>
<td>56,000</td>
<td>90,000</td>
<td>28,000</td>
<td>120,000</td>
</tr>
</tbody>
</table>

Source: IPEDS (not scaled)
Overall federal R&D funding has been flat (except for stimulus); Texas’s share is declining.

In 2013, TX received 34% of CA's level, or 49% adjusted for population.

Source: NSF (not scaled)
Despite not growing federal R&D funding, Texas has significantly increased its recognized research universities.

Carnegie Research (1, 2, 3) Universities

<table>
<thead>
<tr>
<th>Year</th>
<th>TX</th>
<th>CA</th>
<th>FL</th>
<th>NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>15</td>
<td>25</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>2015</td>
<td>20</td>
<td>25</td>
<td>15</td>
<td>25</td>
</tr>
</tbody>
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Total number in USA increased 20%

Source: Carnegie (not scaled)
But Texas lost one globally-ranked university, reflecting escalating international competition.

**Source:** ARWU (not scaled)
Texas graduate production is increasing most in business and health

Graduate Degree Completions, 2005 and 2014

- Business: Texas graduate production is increasing most in business and health.
- Education: FL, CA, NY are growing in engineering much faster than Texas.
- Health: Liberal Arts and Engineering.
- Social Science: Science.
- Science: Liberal Arts.
- Liberal Arts: Engineering.
- Engineering: Legal.
- Legal: Fine Arts.

Source: IPEDS (not scaled)
Texas labor market demand and need for graduate education
Business, Healthcare, and Education Occupations Have Highest Projected Demand

Projected Increases in Graduate Degree Demand, 10 years (2012-2022)

- Business
- Healthcare
- Teachers
- Lawyers
- Postsecondary faculty
- Computer
- Engineers
- Miscellaneous

RAND analysis of TWC and Census (ACS) data
Findings from Texas case studies on graduate program decisionmaking and proposal processes
We find multiple motivators that drive institutions to propose new graduate programs

**INSTITUTIONAL**
- Seeking to become a research-intensive university
- Seeking to become known in a specific field or market and possibly move up classifications
- Positive margin activity
- Competition

**DEPARTMENTAL**
- Labor market demand
- Student demand
- Emerging multidisciplinary field
- Professional degree upgrading